

Serial No. 10/520,238  
Atty. Doc. No. 2002P02127WOUS

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REMARKS

Claims 13, 15-17, 19, 20, 24 and 28-32 are pending in the application.

Applicants thank the Examiner for re-opening prosecution in view of the Applicants' comments regarding the final rejection dated as mailed 10/18/2006.

Claims 30-32 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement because they contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claim 30 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Claims 13, 15, 16, 19 and 20 are rejected under 35 U.S.C. §102(b) as being anticipated by Lau et al. (U.S. Pub. No. 2002/0098294). Claims 13, 15, 16, 19 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lau et al. Claim 17 is rejected under 35 U.S.C. §103(a) as being unpatentable over Lau et al. in further view of Dardi (U.S. Pat. No. 4,615,864). Claims 22, 24, 25, 28, 29 and 32 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lau et al. in further view of Khan et al. (U.S. Pub. No. 2002/0187336).

MPEP §2131 provides that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. The identical invention must be shown in as complete detail as contained in the claim. The elements must be arranged as required by the claim.

Claim 13 has been amended to more clearly define the subject matter applicants regard as the invention. More specifically, amended claim 13 recites, among other aspects, "the outer layer zone consisting of a structure of the phase  $\beta$ -NiAl". Amended claim 13 also recites that the outer layer zone has a thickness in the range of approximately 1 micron to 75 microns, preferably up to approximately 50 microns, wherein this thickness is thinner than the intermediate MCrAlY layer zone. Applicants respectfully submit amended claim 13 is not anticipated by Lau et al. because Lau does not set forth each and every element found in amended claim 13.

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The secondary or outer layer of Lau et al. may include a beta phase, which is usually NiAl, CoAl, or mixtures thereof as disclosed in paragraph [0024]; however, there is no teaching or suggestion that the secondary or outer layer consist of, i.e., be limited to, a structure of the phase  $\beta$ -NiAl as recited in amended claim 13. It is respectfully submitted that all embodiments disclosed by Lau et al. contain a quantity of Cr that would inherently lead to phases other than the phase  $\beta$ -NiAl in the secondary or outer layer, as would be recognized by those skilled in the art.

On the contrary, amended claim 13 recites that the protective layer is restricted to the phase  $\beta$ -NiAl, one advantage of which is disclosed in paragraph [0033] of applicants' U.S. Pub. No.: 2005/0238907. Furthermore, as disclosed in paragraphs [0034] through [0037] of this publication, the outer layer zone may include quantities of other alloys provided their inclusion does not lead to the development of new-multiphase microstructures in the outer layer zone. Lau et al. does not teach or suggest this result. In fact, Lau et al. teaches away from the invention as claimed in amended claim 13 because all embodiments disclosed by Lau et al. contain quantities of Cr that would lead to the development of phases other than the phase  $\beta$ -NiAl.

Amended claim 13 also recites that the outer layer zone has a thickness in the range of approximately 1 micron to 75 microns, preferably up to approximately 50 microns, wherein this thickness is thinner than the intermediate MCrAlY layer zone. The inventors of the present invention have determined that applying the phase  $\beta$ -NiAl outer layer zone in a thickness of this range overcomes problems associated with brittleness of the phase  $\beta$ -NiAl outer layer zone as disclosed in [0032] of applicant's U.S. Pub. No.: 2005/0238907. Lau et al. teaches that the second layer of its coating has a thickness in the range of about 35 microns to 85 microns.

While there is some overlap in the range taught by Lau et al. and that claimed by applicants', one skilled in the art would find no motivation to experiment with the thickness of the outer layer zone as claimed because the lower end of this range is far outside that taught by Lau et al. Furthermore, applicants were confronted with the problem of the brittleness of the phase  $\beta$ -NiAl when determining the thickness of the outer layer zone whereas Lau et al. varies the thickness of its secondary layer primarily based on desired levels of oxidation and corrosion protection. The range claimed in amended claim 13 is not due merely to the optimization of

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known proportions but instead is a unique range representing the solution to a specific problem. Consequently, Lau et al. does not teach or suggest the invention as claimed in amended claim 13 or any claims depending there from.

Claim 28 has been amended to more clearly define the subject matter applicants regard as the invention. More specifically, amended claim 28 recites, among other aspects, "the outer layer further comprising a concentration of at least one element selected from the group consisting of Ti and Sc in the range of 0.01 and 1.0 wt%". Support for this amendment is found in paragraphs [0048] through [0051] of applicants' U.S. Pub. No. 2005/0238907. Applicants respectfully submit that amended claim 28 is allowable over the prior art of record.

Applicants respectfully traverse the rejection of claims 30-32 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. While an embodiment of a pure  $\gamma$ -Ni matrix is disclosed in paragraph [0044] of applicants' U.S. Pub. No.: 2005/0238907, paragraphs [0047], [0048] and [0049] of this publication clearly disclose embodiments of the outer layer that are not restricted to a pure  $\gamma$ -Ni matrix. Consequently, a  $\gamma$ -Ni matrix that is not pure is not new matter and applicants respectfully request that this rejection be withdrawn.

With respect to claim 24, applicants respectfully submit that an effective amount of the Lanthanide groups claimed is provided in the amount of about 1 wt%.

With respect to claim 29, applicants respectfully submit that the product claimed therein possesses unobvious differences from that disclosed in Kahn et al.

Claim 19 has been cancelled.

In view of the above amendments and remarks, applicants respectfully submit that claims 13, 15-17, 20, 24 and 28-32 are in condition for allowance and notice to that effect is respectfully requested.

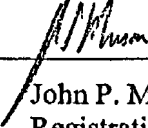
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Conclusion

The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper, including the fees specified in 37 C.F.R. §§ 1.16 (c), 1.17(a)(1) and 1.20(d), or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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